10/100/1000Mbps

Gigabit Ethernet Web-manageable Switch

GSW-1402S

User's Manual

FCC Warning

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the Instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Revision

PLANET Web-manageable Gigabit Ethernet Switch User's Manual

FOR MODELS: GSW-1402S

Part No.: EM-GSW14V1

TABLE OF CONTENTS

Chapter 1 INTRODUCTION

1.1 Checklist

Check the contents of your package for following parts:

- ı GSW-1402S.
- ı CD-ROM.
- ı Quick Installation Guide
- ı Power cord.
- ı 19" rack mount brackets.
- ı RS-232 cable.

If any of these pieces are missing or damaged, please contact your dealer immediately, if possible, retain the carton including the original packing material, and use them against to repack the product in case there is a need to return it to us for repair.

1.2 About the Switch

The Switch GSW-1402S is designed to allow simultaneous transmission of multiple packets via an internal high-speed data channel. This means that it can partition a network more efficiently than bridges or routers in most environments.

The Switch is equipped with Category 5 copper cable or fiber optic cable for uplinking to a network backbone or network server. It is compatible with all 10Mbps, 100Mbps and 1000Mbps Ethernet environments. The increased speed and extra bandwidth offered by Gigabit Ethernet will support faster and more users applications with generating more traffic.

In addition, the Switch is also support two module slots for 10/100/1000Base-T, 1000Base-SX and 1000Base-LX modules to uplink to a server or network backbone. These Switches are designed for Plug and Play installation, allows the network administrator to simply connect the network and power cables and the Switching/bridging functions begin automatically.

The front panels of these Switches provide LEDs for easy recognition of the switch operation status and for troubleshooting. These LEDs display the power status for the system and activity/ speed status for each port.

The built-in console interface and web interface can be used to configure the Switch's setting for VLAN, and Port Trunk Groups, Port Mirroring and Port Speed, flow control enable/ disable.

1.3 Features

- w 14 port 10/100/1000Base-T and 2 slots for 1000Base-T or 1000Base-SX/LX module
- w 32Gbps switch fabric, true non-blocking switch architecture, wire-speed forwarding
- w Provide 4K MAC address entries
- w Complies with IEEE 802.3x, full-duplex flow control, IEEE 802.3z 1000Base-SX/LX, IEEE 802.3ab 1000Base-T, IEEE 802.3/802.3u (10/100Base-TX), IEEE 802.1Q VLAN
- w Configurable through console, Telnet and Web
- w Support up to 255 802.1Q VLAN group
- w Port Trunking Support
- w Port Mirroring for dedicated ports monitoring
- w MDI/MDI-X auto-detection

1.4 Specifications

Network Ports	14 x RJ-45, 10/100/1000Base-T
Module slot	2, 1000Base-T, 1000Base-SX, 1000Base-LX
Modes	Half and Full Duplex, auto-negotiation
Console	1 x RS-232 DB-9
MAC address table size	4k
Switch Fabric	32Gbps
Transmission method	Store-and-forward
Packet Buffer Memory	272K Bytes
Packet Forwarding Rate (64bytes)	14880pps @ 10Mbps 148800pps @ 100Mbps 1488000pps @ 1000Mbps
VLAN	Support IEEE 802.1Q VLAN, up to 255 groups.
Trunk	Trunking function can be set and prevent any loop and fail-over
Port mirroring	Monitor sending packets of a specific port
MDI/MDI-X	Auto MDI/ MDI-X on each port
LEDs	System: PWR, Status Per port: ACT, 10, 100, 1000 Port Module: LNK, ACT
Cables	10Base-T: 2-pair UTP Cat. 3,4,5 up to 100m 100Base-TX: 2-pair UTP Cat.5, up to 100m 1000Base-T: 4-pair UTP Cat 5, up to 100m 1000Base-SX: 50/125 and 62.5/125 fiber-optic cable, up to 550m 1000Base-LX: 9/125 fiber optic cable, up to 10km 50/125 and 62.5/125 fiber-optic cable, up to 550m
Rack Mount	19" rack mount, 1U height
Management Interface	Web, Console, and Telnet
Protocols and Standards	IEEE 802.3 (Ethernet) IEEE 802.3u (Fast Ethernet) IEEE 802.3z/802.3ab (Gigabit Ethernet) IEEE 802.3x (flow control) IEEE 802.1Q VLAN tag RFC 768 UDP RFC 783 TFTP RFC 791 IP RFC 792 ICMP RFC 826 ARP RFC 854 Telnet RFC 2068 HTTP

Chapter 2 Hardware Description

This product series provide three different operating speed – 10Mbps, 100Mbps, and 1000Mbps in the same switch and automatically distinguish the speed of incoming connection.

This section describes the hardware features of these Switches. For easier management and control of the switch, familiarize yourself with its display indicators, and ports. Front panel illustrations in this chapter display the unit LED indicators. Before connecting any network device to the switch, read this chapter carefully.

There are three choices of different modules for expansion:

l   10/100/1000Base-T module

l   1000Base-SX module

l   1000Base-LX   module

2.1 Front Panel

The unit front panel provides a simple interface monitoring the switching hub.
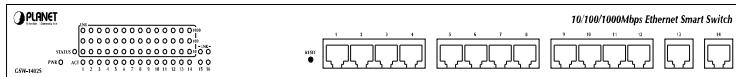
GSW-1402S Switch front panel

LED indicators

PWR		Green	On: power on
STATUS		Green	On: System is OK Blink: Run Time Error occurs
ACT		Green	Blink: there is traffic transverses the port
LNK	10	Green	On: indicate link status and traffic speed (10 for 10Mbps, 100 for 100Mbps, 1000 for 1000Mbps)
	100		
	1000		

Reset button

At the right side of front panel, the reset button is designed for reconfiguring the switch without turn off and on the power.

2.2 Rear Panel

The rear panel of the Switch indicates an AC inlet power socket, which accepts input power from 100 to 240VAC, 50-60Hz, one RS-232 console port for setting up the switch via a connection to a terminal or PC using a terminal emulation program, and two slide slots for installing additional modules.
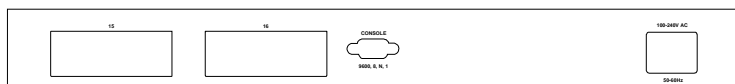
GSW-1402S Switch front panel

1. The device is a power-required device, it means, it will not work till it is powered. If your networks should active all the time, please consider using UPS (Uninterrupted Power Supply) for your device. It will prevent you from network data loss or network downtime.

2. In some area, installing a surge suppression device may also help to protect your switch from being damaged by unregulated surge or current to the Switch or the power adapter.

2.3 Hardware Installation

2.3.1 Connecting end node or hub or switch

1. Place the Switch on a smooth surface or fasten the mounting brackets with the provided screws in a standard 19" rack.
2. Connect switch or PC to one port of the Switch using Category 3/4/5 UTP/STP cabling.
3. Connect another switch or PC to the other port of Switch by following the same process as described in Step 2.

Notice:

Cable distance for Switch

The cable distance between Ethernet Switch and hub/PC should not exceed 100 meter for UTP/STP cable, 220m for 62.5/125 fiber cable and 550m for 50/125 fiber cable if use 1000Base-SX module, 550m for 62.5/125 or 50/125 fiber cable and 10km for 9/125 fiber cable if use 1000Base-LX module.

Make sure the wiring is correct

It can be used Category 3/4/5 cable in 10 Mbps operation. To reliably operate your network at 100Mbps and 1000Mbps, you must use an Unshielded Twisted-Pair (UTP) Category 5 cable, or better Data Grade cabling. While a Category 3 or 4 cables may initially seem to work, it will soon cause data loss.

2.3.2 Connecting to Network Backbone or Server

Connect to the Gigabit Ethernet ports with Category 5 copper cable or fiber optic cable for uplinking to a network backbone or network server. These ports operate at 1000Mbps in full-duplex mode. A valid connection is indicated when the 1000 or LNK LED is on.

Chapter 3 Console management

3.1 Connect To PC

RS-232 serial cable

Prepare a RS-232 serial cable. Attach the 9-pin female connector to the male connector on the switch. Plug the other side of this cable to your PC.

Hyper Terminal

In Windows 95/98/2000/XP, launch "HyperTerminal", create a new connection, and adjust settings as below:
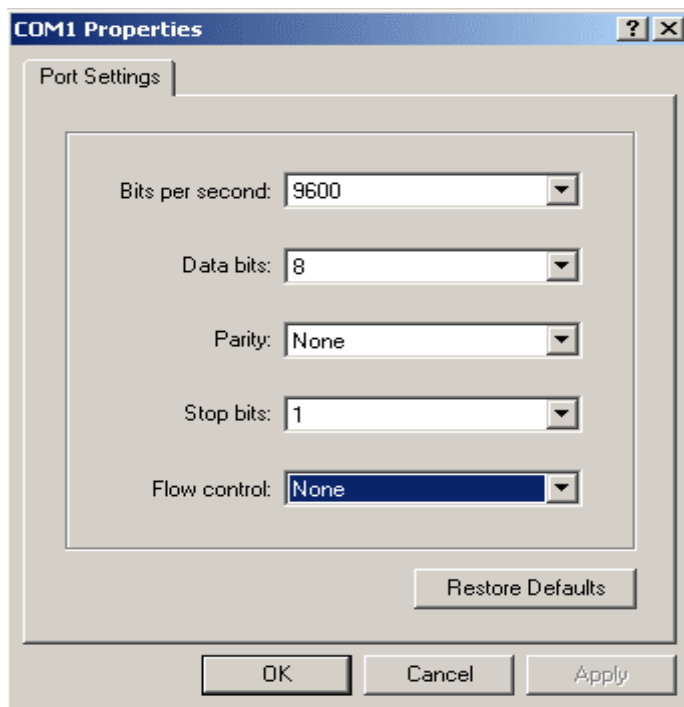
3.2 Main Menu

Power on the switch; launch the new terminal program you just set up. Press "Enter" key, then login screen appears as below. Enter username and password to access GSW-1402S.
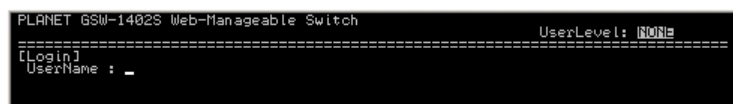
There are three system default accounts for different privilege levels:

"root":   root can do any configuration includes changing password and enable/disable management capability via console port. The default password of root is "superuser". Note that this account is not workable on telnet and web management interface.

"admin"   admin can do any configuration except changing password. The default password of admin is "admin".

"guest":   guest can view the whole switch information only, moreover, access to Web management interface is not allowed. The default password is "guest".

Main menu appears after successfully login GSW-1402S. To enter any of the submenus, simply type the number after the command prompt.

3.3 System Menu

System Menu contains two options: System Information and System Configuration.

3.3.1 System Information

This screen shows the hardware and software versions of current switch. Moreover, information of System Contact, Device Name, and Device Location also included.

3.3.2 System Configuration

Select 2 from System Menu to configure System Contact, Device Name, and Device Location.

System Contact: Who the System administrator is (optional)

Device Name: Naming the system (optional)

Device Location: Where the switch locates (optional)

3.4 Management Setup Menu

Management Setup Menu contains three options: Network Configuration, Console Port Status Display, and Management Features Control.

```
PLANET GSW-1402S Web-Manageable Switch
                                              UserLevel: SUPER USER
================================================================================
[Management Setup Menu]
 1. Network Configuration
 2. Console Port Status Display
 3. Management Features Control
================================================================================
<Press ESC key to go back previous screen>, or
Please input one value (1..3):
```

3.4.1 Network Configuration

To display the current network settings of switch, select 1 from Management Setup Menu. This screen also allows user to modify these settings including IP address, Subnet Mask, and Default Gateway.

Be reminded that after modifying some settings, you must use option 4 to apply changes, and go back to Main Menu, use option 6 to save changes to NVRAM. Moreover, the IP addresses of switch and Default Gateway have to be in the same IP segment; otherwise, GSW-1402S will not apply such configuration.

```
PLANET GSW-1402S Web-Manageable Switch
                                              UserLevel: SUPER USER
================================================================================
[Network Configuration Menu]
Network Interface Info
  MAC Address            : 00-30-4F-B2-51-AC

Configuration Settings        CURRENT            CHANGE
 1. IP Address          : [192.168.  0.  1]  [192.168.  0.  1]
 2. Subnet Mask         : [255.255.255.  0]  [255.255.255.  0]
 3. Default Gateway     : [192.168.  0.254]  [192.168.  0.254]
--------------------------------------------------------------------------------
 1. Change IP Address
 2. Change Subnet Mask
 3. Change Default Gateway
 4. Apply Changes
================================================================================
<Press ESC key to go back previous screen>, or
Please input one value (1..4):_
```

3.4.2 Console Port Status Display

To display the parameters used for console port access, select 2 from Management Setup Menu.

```
PLANET GSW-1402S Web-Manageable Switch
                                              UserLevel: SUPER USER
================================================================================
[Console Port Status Menu]
  Baudrate          : 9600
  Databits          : 8
  Parity            : None
  Stopbits          : 1
  Flow Control      : None
================================================================================
<Press any key to exit the screen>_
```

3.4.3 Management Features Control

This screen allows user to control web and telnet management features.

```
PLANET GSW-1402S Web-Manageable Switch
                                              UserLevel: SUPER USER
================================================================================
[Management Features Control Menu]
 1. Web-based Capability
 2. Telnet Capability
================================================================================
<Press ESC key to go back previous screen>, or
Please input one value (1..2):
```

3.4.3.1 Web-based Capability

Select 1 from Management Features Control Menu. To enable or disable web management interface, select 1. To view or modify HTTP access port number, select 2. Please note that GSW-1402S only accept port number 80 or range from 1000 to 2000.

```
PLANET GSW-1402S Web-Manageable Switch                    UserLevel: SUPER USER
================================================================================
[Management Features Control Web Menu]
  1. Web Admin
  2. Select HTTP Port No.
--------------------------------------------------------------------------------
<Press ESC key to go back previous screen>, or
Please input one value (1..2):_
```

3.4.3.2 Telnet Capability

Select 2 from Management Features Control Menu. To enable Telnet management interface, select 1. To disable Telnet management interface, select 2.

```
PLANET GSW-1402S Web-Manageable Switch                    UserLevel: SUPER USER
================================================================================
[Management Features Control Telnet Configuration Menu]
  1. Enable
  2. Disable
--------------------------------------------------------------------------------
<Press ESC key to go back previous screen>, or
Please input one value (1..2):_
```

3.5 Device Control Menu

Device Control Menu sets up the advanced functions of GSW-1402S include Port Configuration, VLAN, Port Mirror, and Port Aggregation (Trunk).

```
PLANET GSW-1402S Web-Manageable Switch                    UserLevel: SUPER USER
================================================================================
[Device Control Menu]
  1. Port Status/Configuration
  2. IEEE802.1Q TAG VLAN
  3. Mirror
  4. Port Aggregation
--------------------------------------------------------------------------------
<Press ESC key to go back previous screen>, or
Please input one value (1..4):_
```

3.5.1 Port Status/Configuration

From Device Control Menu, select 1 to enter Port Status/Configuration Menu.

```
PLANET GSW-1402S Web-Manageable Switch                    UserLevel: SUPER USER
================================================================================
[Port Status/Configuration Menu]
  1. Port Status
  2. Port Configuration
--------------------------------------------------------------------------------
<Press ESC key to go back previous screen>, or
Please input one value (1..2):
```

To display the status of each port, select 1 from Port Status/Configuration Menu. This screen contains information of port number, connection type, Admin management, link status, link speed, duplex, and flow control.

```
PLANET GSW-1402S Web-Manageable Switch                    UserLevel: SUPER USER
================================================================================
[Port Status Menu]
 PORT#    Type     Admin    Link    Speed    Duplex     Flow-Ctrl
 -----------------------------------------------------------------
    1     1000T    Enable   DOWN    N/A      N/A        N/A
    2     1000T    Enable   DOWN    N/A      N/A        N/A
    3     1000T    Enable   DOWN    N/A      N/A        N/A
    4     1000T    Enable   DOWN    N/A      N/A        N/A
    5     1000T    Enable   DOWN    N/A      N/A        N/A
    6     1000T    Enable   DOWN    N/A      N/A        N/A
    7     1000T    Enable   DOWN    N/A      N/A        N/A
    8     1000T    Enable   DOWN    N/A      N/A        N/A
    9     1000T    Enable   DOWN    N/A      N/A        N/A
   10     1000T    Enable   DOWN    N/A      N/A        N/A
   11     1000T    Enable   DOWN    N/A      N/A        N/A
   12     1000T    Enable   DOWN    N/A      N/A        N/A
================================================================================
<Press any key to see more information>_
```

To modify port name, Admin status, link speed/duplex, and flow control, select 2 from Port Status/Configuration Menu. Enter the port number you want to make change to, and set the desired configurations.

```
PLANET GSW-1402S Web-Manageable Switch                    UserLevel: SUPER USER
================================================================================
[Port Configuration Menu]
 Which Port (1-14) or ESC key to exit:3_
```

3.5.2 IEEE802.1Q TAG VLAN

The VLAN is a group of ports that may spread around the network but communicate as though they belong to one subnet. By using IEEE802.1Q compliant VLAN, all ports can be reorganized into separate broadcast domains for security reasons and reduce bandwidth occupation instead of using routers to divide whole network into subnets. It produces cleaner network environment by reducing broadcast traffic and simplify network management by allowing you to move devices to another VLAN without changing physical connections.

Default settings of all ports are VLAN 1 and assigned PVID 1. Moreover, all ports of an Aggregation Group must be treated as an integer when added to/deleted from a VLAN. The IEEE802.1Q TAG VLAN Menu displays VLAN ID range, maximum number of supported VLANs, the number of created VLANs, and active VLANs. Moreover, this menu provides four options including VLAN Port Configuration, VLAN Table Status, VLAN Static Entry Created, VLAN Static Entry Modification, and VLAN Static Entry Delete.

3.5.2.1 VLAN Port Configuration

To set the PVID of a specific port, select 1 from IEEE802.1Q TAG VLAN Menu. Enter the port number you want to assign PVID to, and key in a desired number.

3.5.2.2 VLAN Table Status

To view the status of created VLANs, select 2 from IEEE802.1Q TAG VLAN Menu. This screen shows VLAN ID, VLAN name, members of this VLAN, active status, and creation time.

3.5.2.3 VLAN Static Entry Created

To create a static VLAN entry, select 3 from IEEE802.1Q TAG VLAN Menu. Enter the information of VLAN ID, name, and active status.

3.5.2.4 VLAN Static Entry Modification

To modify an existing VLAN entry, select 4 from IEEE802.1Q TAG VLAN Menu. Choose which VLAN you want to modify, then change the data in next screen.

3.5.2.5 VLAN Static Entry Delete

To delete an existing VLAN entry, select 5 from IEEE802.1Q TAG VLAN Menu. Choose which VLAN you want to delete. After deletion, system will return to IEEE802.1Q TAG VLAN Menu. You can use option 2 to check if the deletion is successfully done or not.

3.5.3 Mirror

Port mirror is used to mirror traffic from source port to a target port for analysis. Up to 2 ports can be monitored (mirrored) simultaneously by 1 sniffer port (target port). Please note that the target port must be in the same VLAN as the source ports.

To enter Port Mirror Menu, select 3 from Device Control Menu. If Mirror Function is active, the screen will show the current configurations.

If Mirror Function is Inactive, Port Mirror Menu would be shown as below.

3.5.3.1 Mirror Function

To set the Mirror Function active or inactive, select 1 from Port Mirror Menu.

```
PLANET GSW-1402S Web-Manageable Switch
                                          UserLevel: ADMIN
=================================================================
[Mirror Function Menu]
  1. Active
  2. Inactive
=================================================================
<Press ESC key to go back previous screen>, or
Please input one value (1..2):_
```

3.5.3.2 Choose Sniffer Port

To change current sniffer port, select 2 from Port Mirror Menu. Then enter the desired port number.

```
PLANET GSW-1402S Web-Manageable Switch
                                          UserLevel: ADMIN
=================================================================
[Mirror Port Menu]
  Current Sniffer Port: 1
=================================================================
<Press ESC key to go back previous screen>, or
Please input one value (1..16):10_
```

3.5.3.3 Choose Monitored Port

To change current monitored port, select 3 from Port Mirror Menu. Then enter the desired port numbers. If you want to enter two numbers, please use a comma between numbers.

```
PLANET GSW-1402S Web-Manageable Switch
                                          UserLevel: ADMIN
=================================================================
[Monitored Port Menu]
  Current Monitored Port: 8,10
  Maximum No. of Supported Monitored Ports: 2
=================================================================
<Press ESC key to go back previous screen>, or
Change Current Member List:
  (1..16): 5,6_
```

3.5.4 Port Aggregation

Port Aggregation (Port Trunk) is used to increase the bandwidth of a switch-to-switch connection. GSW-1402S provides 8 port aggregation groups. Each group consists of 2 ports and creates bandwidth up to 4Gbps at full duplex mode.

To enter Port Aggregation Menu, select 4 from Device Control Menu.

```
PLANET GSW-1402S Web-Manageable Switch
                                          UserLevel: SUPER USER
=================================================================
[Port Aggregation Menu]
  1. Aggregation 1:   1, 2 : [Disable]
  2. Aggregation 2:   3, 4 : [Disable]
  3. Aggregation 3:   5, 6 : [Disable]
  4. Aggregation 4:   7, 8 : [Disable]
  5. Aggregation 5:   9,10 : [Disable]
  6. Aggregation 6: 11,12 : [Disable]
  7. Aggregation 7: 13,14 : [Disable]
  8. Aggregation 8: 15,16 : [Disable]
=================================================================
<Press ESC key to go back previous screen>, or
Please input one value (1..8):
```

This screen shows status of all aggregation groups. To modify the status of a specific group, key in the group number below, then enable or disable its function.

```
PLANET GSW-1402S Web-Manageable Switch
                                          UserLevel: SUPER USER
=================================================================
[Port Aggregation Menu]
  1. Aggregation 1:   1, 2 : [Disable]
  2. Aggregation 2:   3, 4 : [Disable]
  3. Aggregation 3:   5, 6 : [Disable]
  4. Aggregation 4:   7, 8 : [Disable]
  5. Aggregation 5:   9,10 : [Disable]
  6. Aggregation 6: 11,12 : [Disable]
  7. Aggregation 7: 13,14 : [Disable]
  8. Aggregation 8: 15,16 : [Disable]
=================================================================
<Press ESC key to go back previous screen>, or
Please input one value (1..8):1_
```

```
PLANET GSW-1402S Web-Manageable Switch
                                          UserLevel: SUPER USER
=================================================================
[Port Aggregation 1 Configuration Menu]
  1. Enable
  2. Disable
=================================================================
<Press ESC key to go back previous screen>, or
Please input one value (1..2):1_
```

However, before making trunk connections between switches, pay attention to：

1. The ports at both ends of a Port Aggregation connection must be configured as Aggregation Ports.

2. The ports at both ends of a Port Aggregation connection must have the same port properties, including Speed, Duplex mode.

3. All the ports of a Port Aggregation must be treated as an integer when added to/deleted from a VLAN.

4. Before connecting cables between switches, enable the Pot Aggregation to avoid looping.

5. Before disabling Port Aggregation, remove the connecting cables between switches to avoid looping.

6. Both two slide-in slots should use the identical modules (two coppers / two fibers) otherwise the Port Aggregation connection is invalid.

3.6 User Authentication Menu

User Authentication Menu shows the three sets of username and password of GSW-1402S. To change the password, enter one available value after the command prompt. Then assign a new password to it.

3.7 System Utility Menu

System Utility Menu provides some useful tools for GSW-1402S. To enter this menu, select 5 from Main Menu.

3.7.1 System Restart

This menu enables user to restart GSW-1402S without unplug the power cord. There are two options: Cold Start, and Warm Start. Cold Start means switch will reboot with fully Power On Self Test (POST). The system is completely checked but spends much time. Warm Start reboots switch with less time spend.

3.7.2 Default Factory Reset

To reset switch to factory default parameters, select 2 from System Utility Menu. Then click "Y" to reset GSW-1402S.

```
PLANET GSW-1402S Web-Manageable Switch                    UserLevel: ADMIN
==============================================================================
[System Factory Default Setting Menu]
 Do you want to use the factory default setting with the device ? <Y>
```

3.7.3 Timeout Interval Setup

The default timeout value of GSW-1402S is 5 minutes. To modify timeout value, select 3 from System Utility Menu, then enter the desired timeout value.

```
PLANET GSW-1402S Web-Manageable Switch                    UserLevel: SUPER USER
==============================================================================
[Timeout Interval Setup Menu]
 Timeout Current Value :  5 min
==============================================================================
<Press ESC key to go back previous screen>, or
< "0" No Timeout>
Which timeout interval (0..60 min):10
```

3.7.4 TFTP Download

This menu enables user to download firmware via TFTP and upgrade GSW-1402S. To enter TFTP Menu, select 4 from System Utility Menu. The default settings will display as follow.

```
PLANET GSW-1402S Web-Manageable Switch                    UserLevel: SUPER USER
==============================================================================
[TFTP Menu]
<TFTP Current Setting>
 Download Filename  : RUNTIME.BIN
 TFTP Server IP     : [192.168.001.100]
 Download Status    : Last Upgrade Successfully
------------------------------------------------------------------------------
 1. Modify Download Filename
 2. Modify TFTP Server IP
 3. Start TFTP Download
==============================================================================
<Press ESC key to go back previous screen>, or
Please input one value (1..3):_
```

3.7.4.1 Modify Download Filename

To specify the download filename, select 1 from TFTP Menu. Then enter the filename of target file.

```
PLANET GSW-1402S Web-Manageable Switch                    UserLevel: SUPER USER
==============================================================================
[TFTP - Modify Filename Menu]
 Current Download Filename : RUNTIME.BIN
 Please Input New Filename or ESC/Enter to give up: _
```

3.7.4.2 Modify TFTP Server IP

To change the IP address of TFTP server, select 2 from TFTP Menu. Then enter the correct IP.

```
PLANET GSW-1402S Web-Manageable Switch                    UserLevel: SUPER USER
==============================================================================
[TFTP - Modify Server IP Menu]
 Current Server IP    : [192.168.001.100]
 Please Input New Server IP or ESC/Enter to give up : _
```

3.7.4.3 Start TFTP Download

After all above parameters are properly configured, select 3 from TFTP Menu. System will connect to TFTP server and download the target file for upgrading.

3.7.5 Ping

Ping is a simple but useful network tool. GSW-1402S implement this function to facilitate network status diagnosis. To enter Ping Menu, select 5 from System Utility Menu.

```
PLANET GSW-1402S Web-Manageable Switch                UserLevel: SUPER USER
============================================================================
[Ping Menu]
<Ping Current Setting>
 Ping Count            : 3
 Ping Target IP        : [192.168.000.010]
----------------------------------------------------------------------------
  1. Modify Ping Count
  2. Modify Ping Target IP
  3. Start Ping
============================================================================
<Press ESC key to go back previous screen>, or
Please input one value (1..3):
```

3.7.5.1 Modify Ping Count

To modify the ping packet count number, select 1 from Ping Menu. Type a count number from 1 to 1000, or type 0 for an infinite packet count.

```
PLANET GSW-1402S Web-Manageable Switch                UserLevel: SUPER USER
============================================================================
[Ping Count Setup Menu]
 Ping Count: 0 - 1000 , 0 is always ping
 Ping Current Count Value : 3
----------------------------------------------------------------------------
<Press ESC key to go back previous screen>, or
Which Ping Count interval (0..1000):3
```

3.7.5.2 Modify Ping Target IP

To change the IP address of target host, select 2 from Ping Menu. Then enter the correct IP.

```
PLANET GSW-1402S Web-Manageable Switch                UserLevel: SUPER USER
============================================================================
[TFTP - Modify Server IP Menu]
 Current Server IP    : [192.168.001.100]
 Please Input New Server IP or ESC/Enter to give up : _
```

3.7.5.3 Start Ping

After all above parameters are properly configured, select 3 from Ping Menu to start ping test. System will show the test result as follow.

```
PLANET GSW-1402S Web-Manageable Switch                UserLevel: SUPER USER
============================================================================
[Start Ping Menu]
 Do you want to start ping ? <Y>
 <Press ESC to abort>
 Ping target IP [192.168.000.039] in progress...
----------------------------------------------------------------------------
 PING TOTAL COUNT   : 3
 PING SUCCESS COUNT : 3
 PING LOSS RATE     : 0.00%
============================================================================
<Press any key to exit the screen>_
```

3.7.6 Search Location by Port Name

This function is designed to ease the management difficulties. Type an existing port name, then system will display matched port number(s) on screen.

```
PLANET GSW-1402S Web-Manageable Switch                UserLevel: SUPER USER
============================================================================
[Search Location by Port Name Menu]
 Input a string to get the correspondence of Port NO!!
 Enter NULL string and ESC key to go back previous screen>, or
----------------------------------------------------------------------------
 Input Port Name: planet
====================
 Result:
  Port  2
  Port  3
============================================================================
<Press any key to exit the screen>
```

3.8 Save Runtime Configuration

To save all current Runtime setting to NVRAM, select 6 from Main Menu. Type "Y" when following screen appears.

```
PLANET GSW-1402S Web-Manageable Switch                UserLevel: SUPER USER
============================================================================
[Save All Runtime Configuration]
 Save All Current Runtime Setting to NVRAM ?<Y> _
```

4. Web management

4.1 Start A Web Browser Session

The Web Interface of GSW-1402S is coded by Java Applet and running on the JavaTM Virtual Machine (JVM) version 1.3.1 platform. You should configure the management station with an IP address and subnet mask compatible with GSW-1402S for accessing it. Also, the management station should be well configured and connected to Internet for automatically downloading (upgrading) the suitable JVM through Internet from http://java.sun.com. Or you can download from http://java.sun.com/j2se/1.3/download.html and manually install it.

Note: Usually the newer Java**TM** Virtual Machine is not backward compatible. JVM version 1.3.1 is strongly recommended to ensure properly operation.
The default network configurations are as follows:
>   IP: 192.168.0.1
>   Subnet Mask：255.255.255.0
>   Default Gateway： 192.168.0.254

Activate a web browser and enter "192.168.0.1" in the address field. A screen pops up and asks for username/password. Use system default accounts admin/admin to access GSW-1402S.

4.2 Main Page

Main Page appears after successfully login GSW-1402S. There are 7 function button listed on top: Save, Default, Reboot, Ping, Telnet, Contact, and Upgrade.
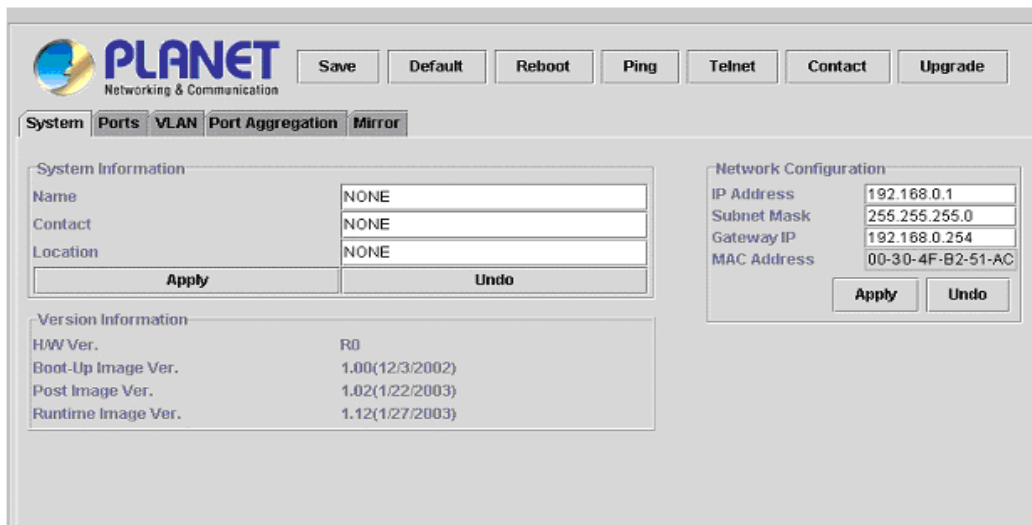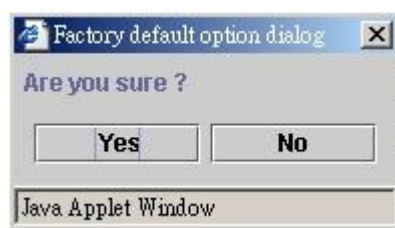
4.2.1 Save

This button enables user to save current settings to NVRAM. After click on it, the following message box appears. Click "Yes" to save settings, click "No" to abort.

4.2.2 Default

This button enables user to reset GSW-1402S to factory default values. After click on it, the following message box appears. Click "Yes" to reset switch, click "No" to abort.

4.2.3 Reboot

This button enables user to reboot switch without unplug the power cord. After click on it, the following message box appears. Select boot type (Warm Boot or Cold Boot). Then click "OK" to reboot, or click "Close" to abort.

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4.2.4 Ping

This button enables user to use ping function. After click on it, the following message box appears. Enter information in Ping Count field and Target IP Address field, then click "Start". The result will be shown in the same message box after test is done.

4.2.5 Telnet

This button enables user to access GSW-1402S through Telnet. After click on it, the Hyper Terminal program will be activated and directly connect to switch.

4.2.6 Contact

This button enables user to send mail to PLANET support team. After click on it, the mailing software such as Outlook will be activated and generate a new mail automatically.

4.2.7 Upgrade

This button enables user to upgrade firmware for switch. After click on it, the following message box appears. Select upgrade type (WEB Upload or TFTP Download). Click "OK" to start upgrade, click "Close" to abort.

4.3 System Page

System Page contains following information: System Information, Network Configuration, and Version Information. Please refer to section 3.3 System Menu for further details.

4.4 Port Page

There are two tabs in Port Page: Information and Configuration. Please refer to section 3.5.1 Port Status/Configuration for further details.

Port	Type	Link	Admin	Speed	Duplex	Flow Ctrl
1	1000T	Link Down	Enable	-	-	NONE
2	1000T	Link Down	Enable	-	-	NONE
3	1000T	Link Down	Enable	-	-	NONE
4	1000T	Link Down	Enable	-	-	NONE
5	1000T	Link Up	Enable	100M	Full	NONE
6	1000T	Link Down	Enable	-	-	NONE
7	1000T	Link Down	Enable	-	-	NONE
8	1000T	Link Down	Enable	-	-	NONE
9	1000T	Link Down	Enable	-	-	NONE
10	1000T	Link Down	Enable	-	-	NONE
11	1000T	Link Down	Enable	-	-	NONE
12	1000T	Link Down	Enable	-	-	NONE

4.4.1 Port Setting Duplicate

This function enables user to duplicate similar settings to all ports at one time. Please follow the procedures below:

1. Click "Configuration" tab in Port Page.
2. Click "Duplicate" button, the dialogue screen appears.

3. Select Source Port (for example Port 2)
4. Select Target Port, click "All" to select all (for example Port 8, 9, 10)
5. Select the port attributes you want to duplicate
6. Click OK to submit values
7. Click Apply button to apply settings
8. As the following result, port 2 is duplicated to port 8, 9, 10 accompany with specified attributes.

Port	Admin	Speed/Duplex	Flow Ctrl
1	Enable	Auto	Disable
2	Enable	10 Full	Enable
3	Enable	Auto	Disable
4	Enable	Auto	Disable
5	Enable	Auto	Disable
6	Enable	Auto	Disable
7	Enable	Auto	Disable
8	Enable	10 Full	Enable
9	Enable	10 Full	Enable
10	Enable	10 Full	Enable
11	Enable	Auto	Disable
12	Enable	Auto	Disable

4.5 VLAN Page

There are three tabs in VLAN Page: VLAN Static List, VLAN Static Table, and VLAN Port Configuration. Please refer to section 3.5.2 IEEE802.1Q TAG VLAN for further details.

4.5.1 VLAN Static List

This screen is used to Add / Remove / Modify VLAN and up to 255 groups. The VLAN groups that have been created are all listed here.

4.5.1.1 To Create A New VLAN Group

1. Specify the name for the new VLAN group (VLAN name is only used for identification).
2. Enter a number (VLAN ID) for the new VLAN group.
3. Check the "Active" box to activate the VLAN or leave it blank and activate it afterward.
4. Click <<Add button to create the new VLAN.

4.5.1.2 To Remove A VLAN Group

1. Select a VLAN group you want to remove from the "Current" list.
2. Click Remove>> button to remove it.

Note: 1. If a removed port is no longer belong to any other group, it is temporarily disabled because no one can communicate with it.
      2. If one port's PVID is equal to this VLAN ID, removing this VLAN group will not allow until you change it.

#### 4.5.1.3 To Modify A VLAN Group

1. Select a VLAN group you want to remove from the current list
2. Modify parameters in "New" column
3. Click Modify button to submit the new parameters

4.5.2 VLAN Static Table

This screen is used to Add/Remove member ports of a VLAN.

4.5.2.1 To Add Member Ports

1. Click the "VLAN ID" combo box and select a VLAN you want new ports to join in.
2. Select ports (press Shift/Ctrl key for selecting multi ports) in the "Non-Member" column.
3. Click <<Add button to join selected ports in.
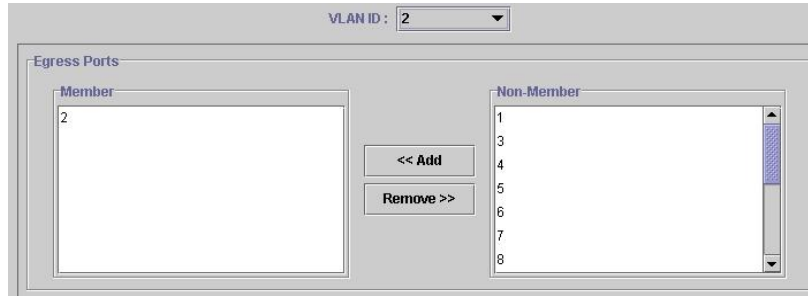
4.5.2.2 To Remove Member Ports

1. Click the "VLAN ID" combo box and select a VLAN you want to remove ports.
2. Select ports (with Shift/Ctrl key to select multi ports) in the "Member" column.
3. Click Remove>> button to delete selected ports.
Note: 1. If a removed port is no longer belong to any other group, it is temporarily disabled because no one can communicate with it.
2. The port which is assigned a PVID and the PVID is equal to VLAN ID, removing the port will not allow until you change it.

4.5.3 VLAN Port Configuration

When the VLAN-enabled switch receives an untagged packet, the packet will be sent to the port's default VLAN according to the PVID (port VLAN ID) of the receiving port.

Port	PVID
1	1
2	1
3	1
4	1
5	3
6	1
7	1
8	1
9	1
10	1
11	1
12	1
13	1
14	1
15	1
16	1

4.5.3.1 To Change The PVID

1. Double click the "PVID" column of a port.
2. Input a new VLAN ID (1~4094).
3. Press "Enter" to submit the value.
4. Click Apply button to apply it.
Note: 1. All the ports are default as members of VLAN 1 and assigned PVID 1.
2. The port which was assigned a PVID and the PVID is equal to VLAN ID, removing the port will not allow until you change it.
3. Automatically, a port will join the VLAN of its PVID, and if the VLAN does not exist, system will create it.

4.6 Port Aggregation Page

This screen includes information of Aggregation Group number, Member Port, and Group Status. Please refer to section 3.5.4 Port Aggregation for further details.

To activate an Aggregation Group, check the box of Aggregation Group in the Status Enable column and press "Apply".

Aggregation Group	Member Port	Status Enable
0	01;02	☑
1	03;04	☐
2	05;06	☐
3	07;08	☑
4	09;10	☐
5	11;12	☐
6	13;14	☐
7	15;16	☐

4.7 Mirror Page

This screen shows Mirror status, Monitored port number, and Sniffer port number. Please refer to section 3.5.3 Mirror for further details.

To set the Mirror function, please follow the procedures below:

1. Click "Active" radio button to activate port mirror.
2. Select 'Monitored Ports' (up to 2 ports).
3. Click 'Sniffer Port' combo box and select a sniffer port (target port) and click "Apply" to apply changes.

Mirroring : ● Active ○ Inactive

Monitored Ports : ☐ 1 ☑ 2 ☑ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐   Max mirrored ports : 2

Sniffer Port : 11 ▼

Apply   Undo

5 Switch Operation

5.1 Address Table

The Switch is implemented with an address table. This address table composed of many entries. Each entry is used to store the address information of some node in network, including MAC address, port no, etc. This information comes from the learning process of Switch.

5.2 Learning

When one packet comes in from any port, the Switch will record the source address, port no. and the other related information in address table. This information will be used to decide either forwarding or filtering for future packets.

5.3 Forwarding & Filtering

When one packet comes from some port of the Switching, it will also check the destination address besides the source address learning. The Switching will lookup the address-table for the destination address. If not found, this packet will be forwarded to all the other ports except the port which this packet comes in. And these ports will transmit this packet to the network it connected. If found, and the destination address is located at different port from this packet comes in, the Switching will forward this packet to the port where this destination address is located according to the information from address table. But, if the destination address is located at the same port with this packet comes in, then this packet will be filtered. Thereby increasing the network throughput and availability.

5.4 Store-and-Forward

Store-and-Forward is one type of packet-forwarding techniques. A Store-and Forward Switching stores the incoming frame in an internal buffer, do the complete error checking before transmission. Therefore, no error packets occurrence, it is the best choice when a network needs efficiency and stability.

The Switch scans the destination address from the packet-header, searches the routing table provided for the incoming port and forwards the packet, only if required. The fast forwarding makes the switch attractive for connecting servers directly to the network, thereby increasing throughput and availability. However, the switch is most commonly used to segment existing hubs, which nearly always improves overall performance. GSW-14-2S can be easily configured in any Gigabit network environment to significantly boost bandwidth using conventional cabling and adapters.

Due to the learning function of the switching, the source address and corresponding port number of each incoming and outgoing packet are stored in a routing table. This information is subsequently used to filter packets whose destination address is on the same segment as the source address. This confines network traffic to its respective domain, reducing the overall load on the network.

The Switch performs "Store and forward" therefore, no error packets occur. More reliably, it reduces the re-transmission rate. No packet loss will occur.

5.5 Auto-Negotiation

The STP ports on the Switch have built-in "Auto-negotiation". This technology automatically sets the best possible bandwidth when a connection is established with another network device (usually at Power On or Reset). This is done by detect

the modes and speeds at the second of both device is connected and capable of, Both 10Base-T and 100Base-TX devices can connect with the port in either Half- or Full-Duplex mode. 1000Base-T and 1000Base-SX can only connect in Full-duplex mode.

6. Troubleshooting

This chapter contains information to help you solve problems. If GSW-1402S is not functioning properly, make sure the Switch was set up according to instructions in this manual.

The Link LED is not lit

Solution:

Check the cable connection and remove duplex mode of the Giga Switch

Some stations can not talk to other stations located on the other port

Solution:

The address table may contain older information than of the address table of that node. Please power down to refresh the address information

A.1 Switch's RJ-45 Pin Assignments

1000Mbps, 1000Base T

Contact	MDI	MDI-X
1	BI_DA+	BI_DB+
2	BI_DA-	BI_DB-
3	BI_DB+	BI_DA+
4	BI_DC+	BI_DD+
5	BI_DC-	BI_DD-
6	BI_DB-	BI_DA-
7	BI_DD+	BI_DC+
8	BI_DD-	BI_DC-

Implicit implementation of the crossover function within a twisted-pair cable, or at a wiring panel, while not expressly forbidden, is beyond the scope of this standard.

A.2 10/100Mbps, 10/100Base-TX

Contact	MDI	MDI-X
1	1	3
2	2	6
3	3	1
6	6	2

A.3 RJ-45 cable pin assignment

CE